Update on the status of Snake River Subyearling Chinook Migration

- Current Year Passage of PIT-tagged Snake Subs

  LGR PIT Detections

  LGR Estimated Passage

- Collection Efficiency Estimates
- 2005 and Historic Passage Index at LGR
- Historic Timing Wild PIT-tags

LGR PIT-tag Detection Summary

Updated Lower Granite Detections and Estimated Pop Passage

smrt	Org	River	Marks	LGR Detecs	Pct
15W	USFWS	Snake R	9302	1038	11.16%
13W	NPT	Clearwater R	1875	15	0.80%
13H	NOAA	Clearwater R	45790	128	0.28%
13H	NOAA	Snake R	121833	19007	15.60%

smrt	Org	River	Marks	LGR Pop Est	Pct
15W	USFWS	Snake R	9302		Pop Pass LGR
WPC (n/.5)/(1-(S%+.2))				5038	54.16%
FPC1 (n/0.5) then (n/0.2)				2723	29.27%
FPC2 (n/0.42) then (n/.09)				4351	46.77%

smrt	Org	River	Marks	LGR Pop Est	Pct
13Ws	NPT	Clearwater R	1875		Pop Pass LGR
WPC (n/.5)/(1-(S%+.2))				112	5.97%
FPC1 (n/0.5) then (n/0.2)				63	3.36%
FPC2 (n/0.42) then (n/.09)				111	5.93%

smrt	Org	River	Marks	LGR Pop Est	Pct
13H	NOAA	Clearwater R	45790		
WPC (n/.5)/(1-(S%+.2))				1452	3.17%
FPC1 (n/0.5) then (n/0.2)				640	1.40%
FPC2 (n/0.42) then (n/.09)				1422	3.11%

Collection Efficiency Calculations at LGR

- Compare Methods of Estimating Collection Efficiency/Population Expansion methods

- Cormack-Jolly-Seber
- FPCv1 and v2 memo method
- WPC memo spill expansion method

Methods used to calculate Collection Efficiency at LGR

- FPC Methods – CJS

$$CE_{lgr} = \frac{m_2}{m_2 + z_2 \frac{R_2}{r_2}}$$

$R_2 =$ Number re-released at LGR

$r_2 =$ Number of R_2 detected below LGR

$z_2 =$ Number of R_1 not seen at LGR detected below L

$m_2 =$ Number of R_1 detected at LGR

Methods used to calculate Collection Efficiency at LGR cont.

- FPC Methods – use LGS detects to estimate LGR CE (based on various methods)

$$CE_{daily} = \frac{X_{11}}{X_{11} + (F_{lgr} * X_{01})}$$

X_{11} = PITs seen at LGR and LGS

X_{01} = PITs seen at LGS but not LGR

F_{lgr} = proportion of fish removed at LGR (trans, research)

- Project X_{01} distribution based on X_{11} travel time distribution at LGS (gamma dist)
- Calculate seasonal weighted CE

  (weight daily LGS PIT detections)

Methods used to calculate Collection Efficiency at LGR cont.

- WPC - spill expansion method

$$\text{Daily PIT Passage} = \frac{\frac{X_1}{FGE_{lgr}}}{1-(\text{DailyPctSpill}_{lgr}+0.2)}$$

X_1 = Daily PIT detects at LGR

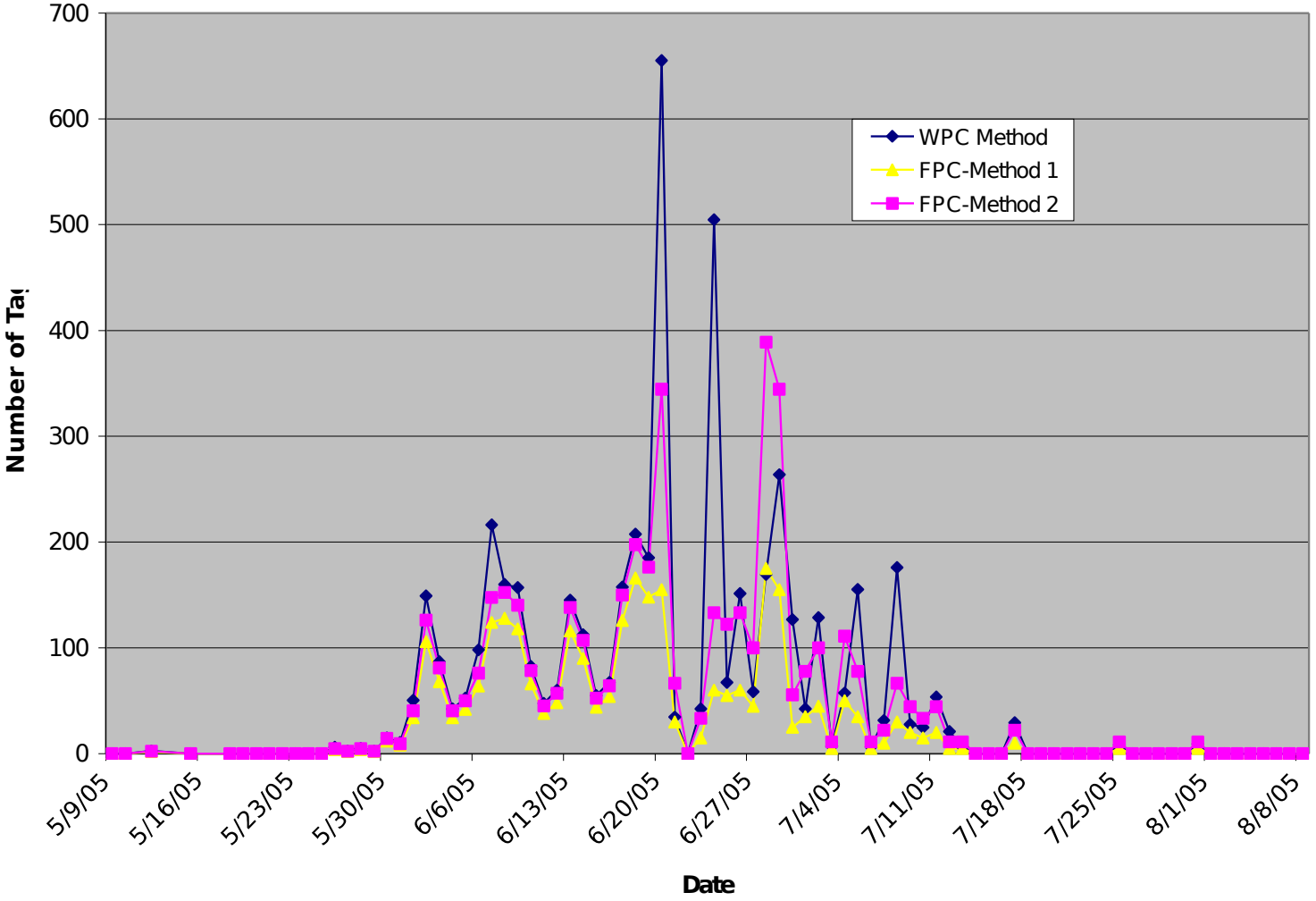
FGE_{lgr} = 0.5 assumed FGE

- Seasonal Total PIT Passage sum of daily totals

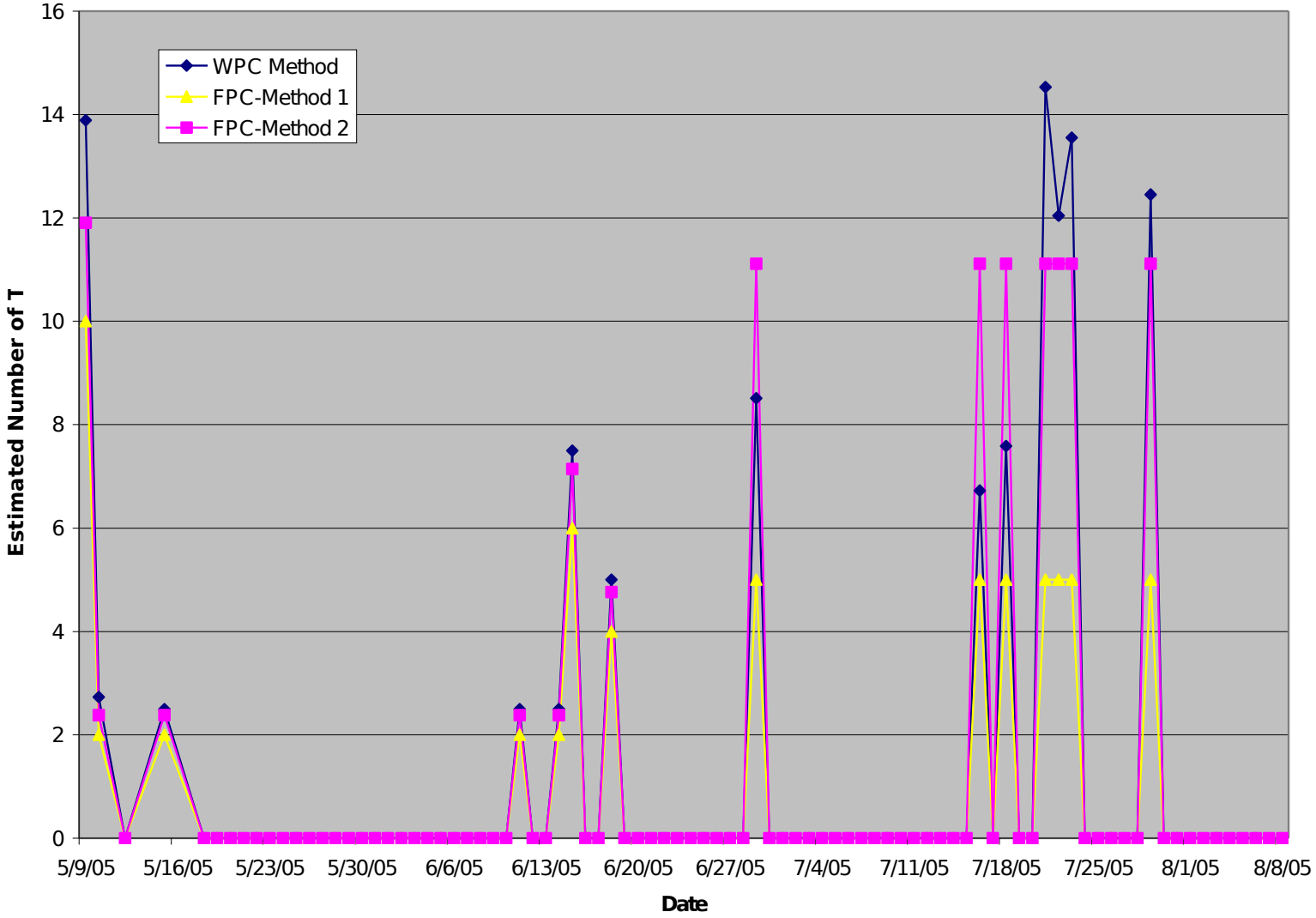
Range of Total Snake River 15W PIT passage estimates from methods

Method	LGR CE Prior to June 20	LGR CE After June 20	Estimated total PIT passage R = 9302, LGR det = 1038
CJS	0.269	0.269	3,858 (41%)
FPC v1	0.50	0.20	4,351 (47%)
FPC v2	0.42	0.09	2,723 (29%)
WPC spill exp	0.33	0.08	4,829 (52%)

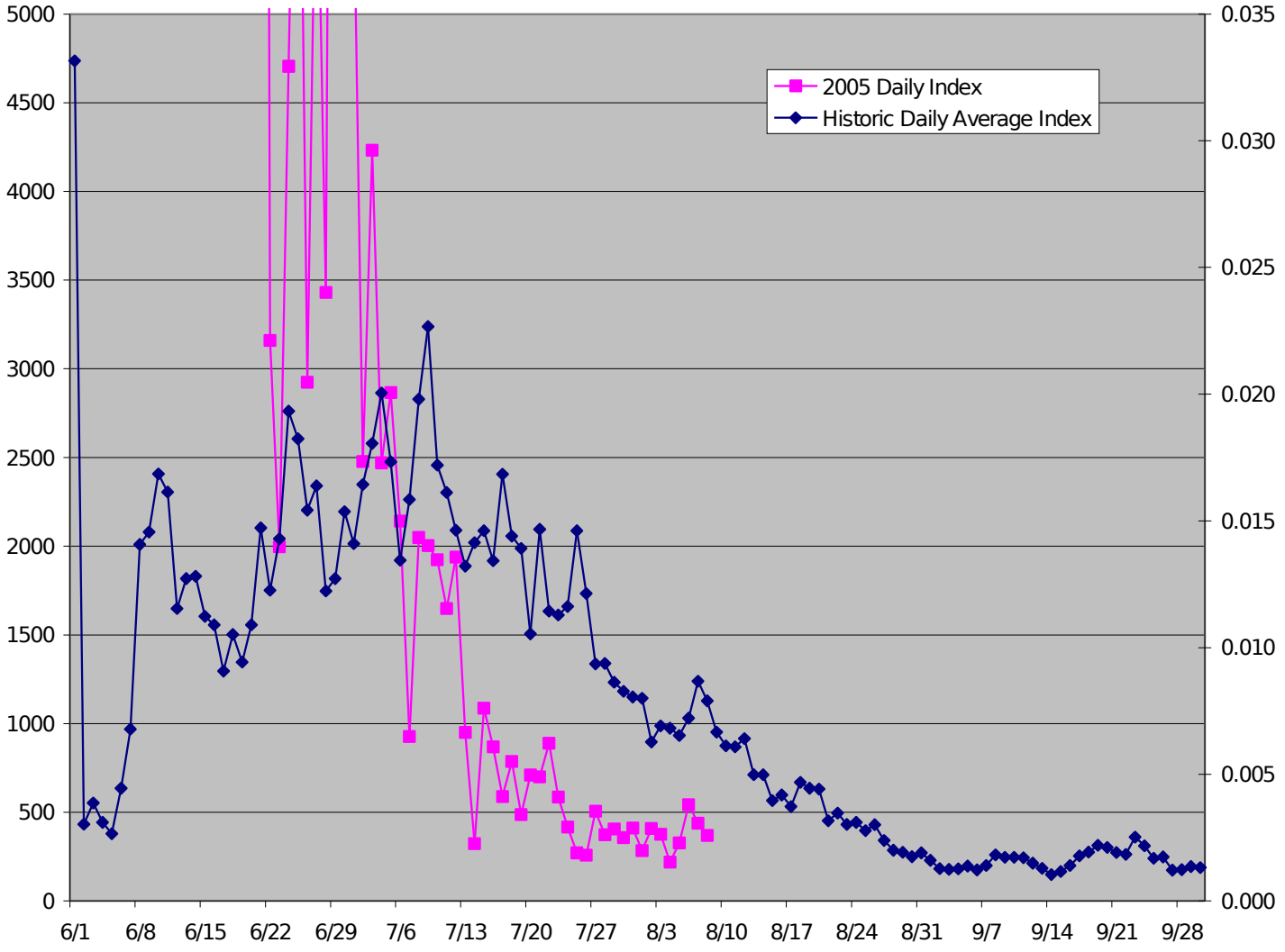
Daily estimates of PIT-tag passage at LGR Snake River Wild Subs (15W)



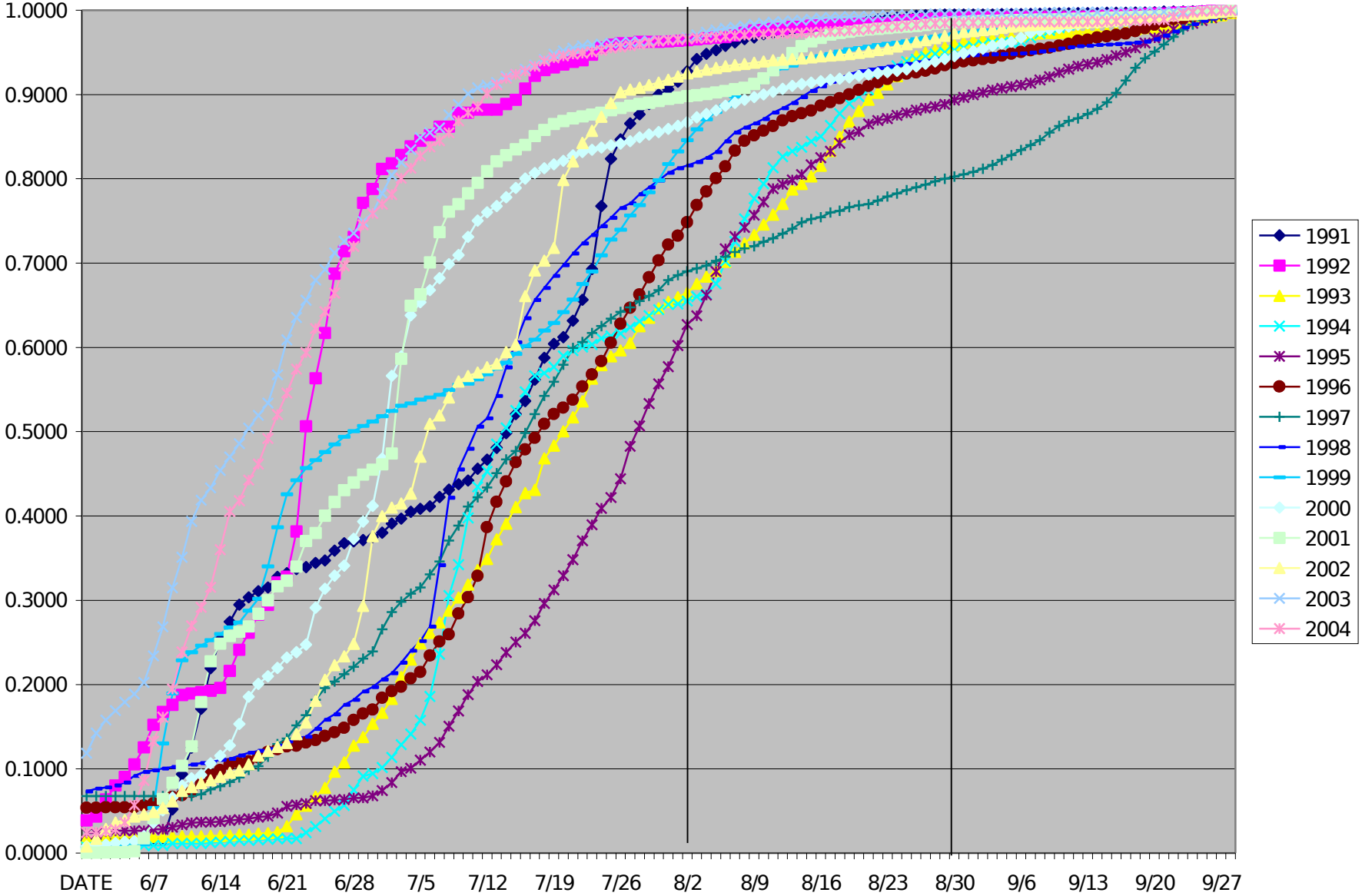
Daily estimates of PIT-tag passage at LGR Clearwater River Wild Subs 13W



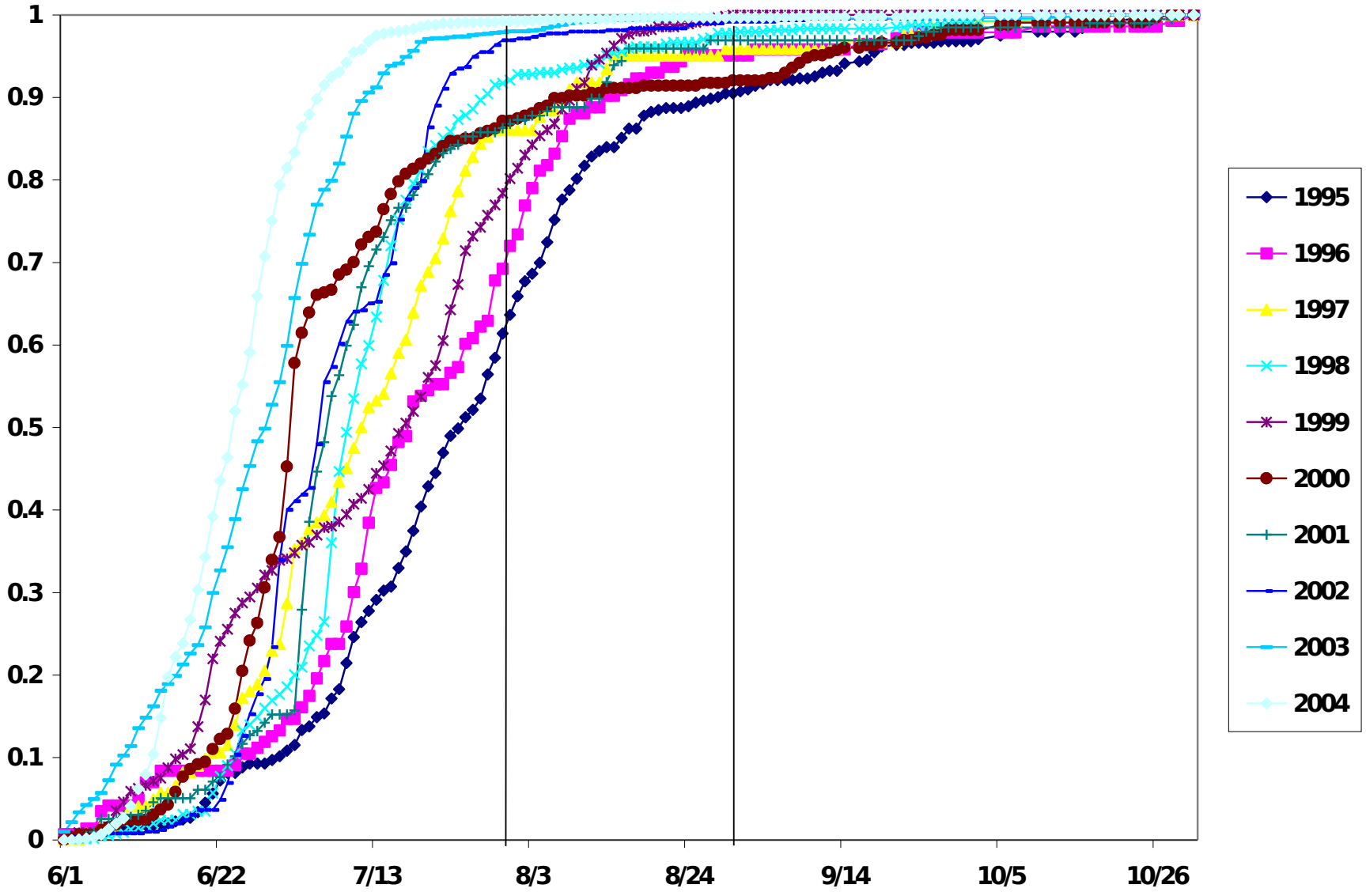
Historic average daily index at LGR compared to 2005 daily index



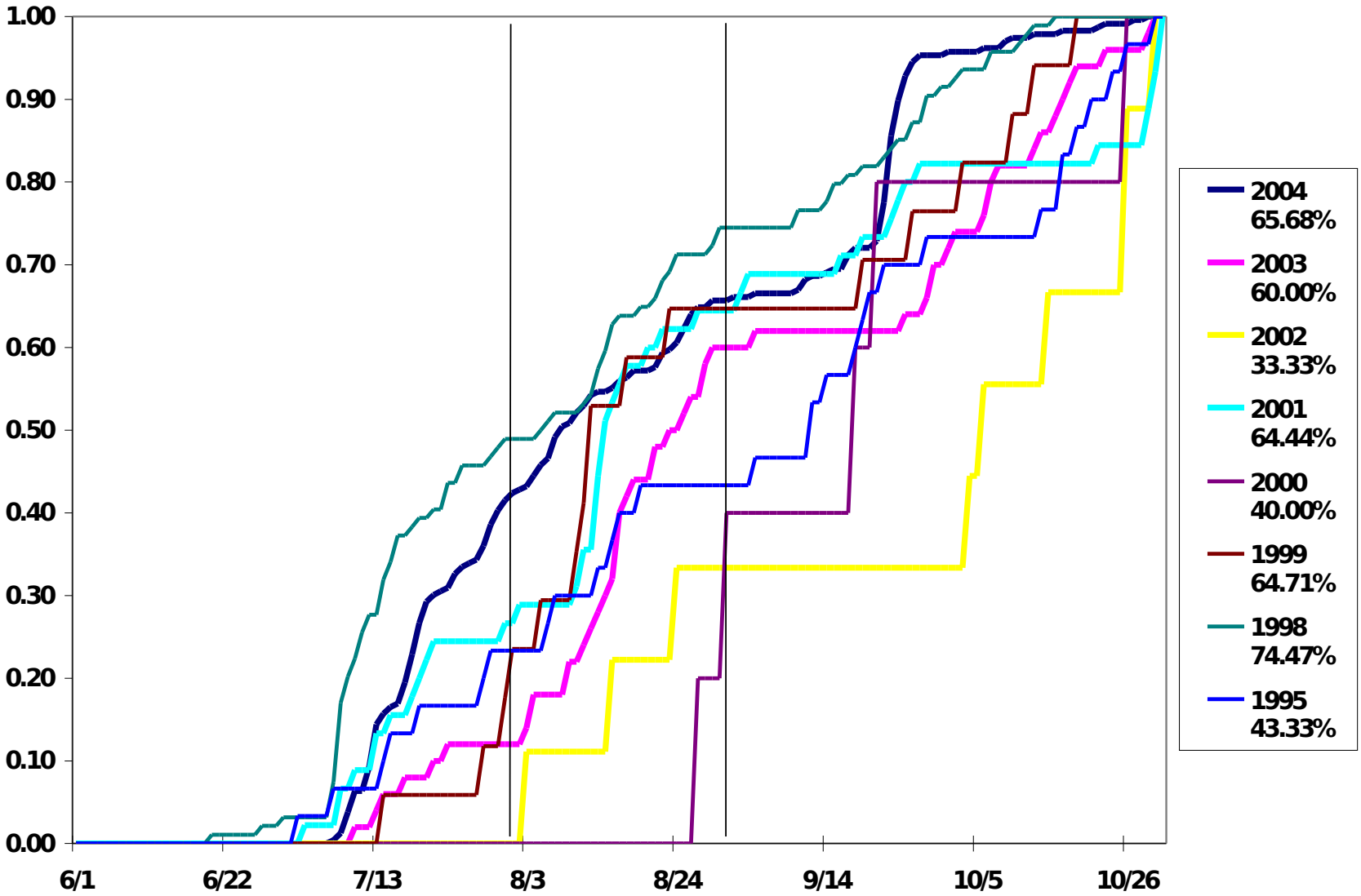
Historic Cumulative Passage Timing LGR CH0



Historic wild Snake River PIT-timing at LGR



Historic wild Clearwater River PIT-timing at LGR



D?